CRM Workshop May 23, 2007

Panel 1 - Control Room Practices & Change Management

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Control Room Practices & Change Management

- **Focus on Gas/Liquid Transmission Systems**
  - WA State Citizens Committee on Pipeline Safety 6/30/04 Recommendation Letter to PHMSA
  - PIPES Act of 2006, Section 12
- **Gas vs Liquid Transmission Pipelines**
  - Operational Characteristics Different Requiring Different Control & SCADA Systems
  - SCADA Outputs/Controller Recognition/Training Very Similar
  - Not All Systems SCADA

Control Room Practices & Change Management

- **Control Room Critical in Many Transmission Pipeline Operations**
  - Usually First Area Investigated
  - Little Tolerance For Sacrificing Controllers
  - Public Will Not React Well to Poor Handling of this Issue
- **SCADA Approaches Historically Not Well Defined in Regulation or Standards**
  - Wide Variation in Approaches

Control Room Practices & Change Management

- **Pipeline Major Forces / Pressures in Play**
    - **Takeovers/Restructurings/Cost Cutting**
    - **Control Room Consolidation/Centralization**
    - **Different Roles / Responsibilities / Approaches Among Control Rooms**

Control Room Practices & Change Management

- **Takeovers/Restructurings/Cost Cutting**
  - **The "Do More with Less" Syndrome**
  - **Misperception That More Information Coming Faster is Good!**
    - High Potential for Misinformation & Information Overload
  - **Business Unit Conflicts**

Control Room Practices & Change Management

- **Control Room Consolidation**
  - **Staffing Reductions**
  - **Experience Levels Dropping**
  - **Good Bet Each Controller Handling More Miles of Pipeline**
  - **Out of State, Out of Country**
  - **Complexities of Systems Increasing**

Control Room Practices & Change Management

- **Conflicting Role of SCADA & Controllers**
  - **Operation Tool?**
  - **Efficiency Tool?**
  - **Management Tool?**
- **CRM Enhancement (Core) Areas**
  - **Nine Discussed in Today's Workshop Panels**
  - **Some Focused Observations by Core Area**
  - **Concluding CRM Statements in Panel 3**

Control Room Practices & Change Management

- **Core Area 1 - Controller Roles & Responsibilities**
  - **Does Controller Have Control of the System?**
    - Interface
    - Quality Tariff Enforcement
    - Authority
  - **SCADA Hierarchy (In Order- First Most Critical)**
    1) Design Approach Focused on Protecting Mainline
    2) Human Performance Factors Incorporated
    3) Training
  - **Some Operators Good - Others Not So Good**
    - Start with NTSB Database for Examples of Control Room Breakdowns

Control Room Practices & Change Management

- **<u>Core Area 2 - Shift Turnover Process</u>**
  - **Simple Resolution - Don't Overwork**
  - **Core "Turnover" Issues**
    - Formally Incorporated into Controller Organization
      - Turnover part of the Work Process?
      - Checklist?
    - Types Of Information
      - Alarms
      - At-Risk Work on ROW
      - Key Equipment Down / Unusual Operations

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- **<u>Core Area 3 - Controller Qualifications - Performance Metrics</u>**
  - **Address Unique Skill Requirements**
  - **Basic System Understanding**
  - **Priority to Core Understanding of Main Pipeline**
    - Protective Devices
    - Levels of <u>Independent</u> Protection and Set Points
    - Recognize Abnormal Operations
    - Control Room Authority
    - Role in Emergency Response

Control Room Practices & Change Management

- **Core Area 4 - Management of Change**
  - **Especially Focused on Impacts to Mainline**
  - **Mandatory That Control Room be in the Change Process Loop**
    - Controller Management Review of Proposed Changes Affecting Main Pipeline
    - All Control Room Personnel Written Sign-off of New Installations and Their Purpose
  - **Changes Timely Incorporated into SCADA System and Controller Training**

Control Room Practices & Change Management

- **Core Area 5 - Annual Review & Validation**
  - **Not Just Paperwork**
  - **SCADA Reflects What is Actually in the Field**
  - **Reality Check**
    - All Control Room Personnel Understand Current Operating Systems, Roles, and Responsibilities
  - **Keep This Simple**